

What is claimed is:

1. A three-terminal organic electro-luminescent (EL) device comprising:

a substrate;

a first electrode formed on said substrate;

at least one organic material layer including an organic light-emitting layer formed on said first electrode;

a second electrode formed on said organic material layer; and

at least one third electrode formed on or inside said organic material layer, for adjusting the injection of electrons or holes to said organic material layer from said first electrode, said second electrode, and said third electrode.
2. The three-terminal organic EL device according to claim 1, wherein the third electrode is formed outside of a region which is between said first electrode and said second electrode.
3. The three-terminal organic EL device according to claim 1, wherein the distance from said third electrode to the region which is between said first electrode and said second electrode must be provided and is less than 1 mm.
4. The three-terminal organic EL device according to claim 1, wherein each of said first electrode, said second electrode and said third electrode is made of a conductive organic material, a conductive inorganic material, a metal or complex thereof.
5. The three-terminal organic EL device according to claim 1, wherein said third electrode is made of one selected from a group consisting of ITO, Ag, Al, Mg, Ca, Li, and compound thereof.

6. The three-terminal organic EL device according to claim 1, wherein said third electrode is encapsulated by an insulating organic material or an insulating inorganic material.
7. The three-terminal organic EL device according to claim 1, wherein said third electrode is connected to an external circuit so as to have a positive or a negative potential and injection of holes and electrons into said organic material layer is controlled by the potential of said third electrode.
8. The three-terminal organic EL device according to claim 1, further comprising a hole injecting layer for injecting holes and a hole transporting layer for transporting the hole, into said organic light-emitting layer, said hole injecting layer and said hole transporting layer formed between said first electrode and said organic light-emitting layer.
9. The three-terminal organic EL device according to claim 8, further comprising an electron transporting layer for injecting and transporting electrons, into said organic material layer, said electron transporting layer formed between said second electrode and said organic light-emitting layer.
10. The three-terminal organic EL device according to claim 8, wherein said third electrode is formed on said hole injecting layer or said hole transporting layer, or formed inside said hole injecting layer or said hole transporting layer.
11. The three-terminal organic EL device according to claim 9, wherein said third electrode is formed on said organic light-emitting layer or said electron transporting layer or formed inside said organic light-emitting layer or said electron transporting layer.
12. The three-terminal organic EL device according to claim 1, wherein said organic light-emitting layer is made of an organic monomer, oligomer or polymer, which is conductive, non-conductive or semi-conductive.

13. The three-terminal organic EL device according to claim 1, wherein said substrate is made of a transparent glass, silicon or gallium arsenide.